

Amendments to the Specification

Insert the following paragraph on page 1, before the first line:

Cross-Reference to Related Applications

This application is a national phase of PCT application No. PCT/JP2004/016608, filed November 9, 2004, the entire contents of which are incorporated by reference. This application also claims benefit of priority under 35 USC § 119 to Japanese Patent Application No. 2003-382033 filed November 12, 2003 and Japanese Patent Application No. 2004-113570 filed April 7, 2004, the entire contents of which are incorporated by reference.

Replace paragraph [0003] with the following rewritten paragraph:

Such an electronic throttle valve system is equipped with a failsafe function which stops the driving of the throttle valve by an electric motor and returns the throttle valve to the fully closed position with the urging force of a spring when the control system has a failure. The engine is thereby maintained in such a state that escape a failure operation can be conducted and the vehicle can be driven to a safe place.

Replace paragraph [0004] with the following rewritten paragraph:

When a bypass line is provided so that a certain amount of air can be sucked into the engine even when the throttle valve is returned to the fully closed position by the urging force of a spring, the engine can be maintained in such a state that escape a failure operation can be conducted.

Replace paragraph [0006] with the following rewritten paragraph:

The speed, at which a throttle valve is rotated in the closing direction by the urging force of a spring when the control system has a failure, is very high. Thus, the output of the engine is rapidly decreased. In the case of a four-wheeled

passenger vehicle, a driver does not feel a change in the behavior of the vehicle even when the engine output is rapidly decreased since the vehicle is heavy in weight. In the case of a two-wheeled motor vehicle which is light in weight, however, the rider feels a change in the behavior of the vehicle, ~~which may adversely affect the operability of the vehicle or give the rider an uncomfortable feeling.~~

Replace paragraph [0010] with the following rewritten paragraph:

In the case of a two-wheeled motor vehicle, however, it is physically difficult to install such damping means since, unlike a four-wheeled motor vehicle, there is a limit to the housing space available. Also, when an electronic damper such as an electroviscous damper is used, the electronic damper must also ~~controlled~~ control itself in association with the control system having a failure. This causes problems of complexity of the control system and an increase in cost.

Replace paragraph [0011] with the following rewritten paragraph:

The present invention has been made in view of the above points and it is, therefore, an object of the present invention is to provide an electronic throttle valve control system which requires no additional housing space and which can prevent rapid rotation of a throttle valve when the control system has a failure.

Replace paragraph [0012] with the following rewritten paragraph:

According to the present invention, an electronic throttle valve control system ~~having~~ has: a throttle valve for controlling the amount of intake air to an internal combustion engine; an electric motor for driving the throttle valve and a control section for controlling the electric motor; ~~characterized in that the.~~ The throttle valve has an urging mechanism for urging the throttle valve in the closing direction, and the control section shifts the electric motor to a regenerative mode to control

the speed at which the throttle valve is rotated in the closing direction by the urging force of the urging mechanism when the control system has a failure.

Replace paragraph [0014] with the following rewritten paragraph:

According to the present invention, another electronic throttle valve control system ~~having~~ has a throttle valve for controlling the amount of intake air to an internal combustion engine; an electric motor for driving the throttle valve; and a control section for controlling the electric motor; ~~characterized in that the.~~ The throttle valve has a first urging mechanism for urging the throttle valve in the closing direction and a second urging mechanism for urging the throttle valve in the opening direction, and the control section shifts the electric motor to a regenerative mode to control the speed at which the throttle valve is rotated in the closing direction by the relative urging force of the first and second urging mechanisms when the control system has a failure.

Replace paragraph [0016] with the following rewritten paragraph:

Preferably, the internal combustion engine is maintained in such a state that ~~escape~~ a failure operation can be conducted when the throttle valve is held in the predetermined opening position.

Replace paragraph [0017] with the following rewritten paragraph:

According to the present invention, another electronic throttle valve control system ~~having~~ has a throttle valve for controlling the amount of intake air to an internal combustion engine; an electric motor for driving the throttle valve; and a control section for controlling the electric motor; ~~characterized in that the.~~ The control section shifts the electric motor to a regenerative mode to control the rotation of the throttle valve when the control system has a failure.

Replace paragraph [0024] with the following rewritten paragraph:

When a first urging mechanism for urging the throttle valve in the closing direction and a second urging mechanism for urging the throttle valve in the opening direction are provided, the throttle valve can be held in an opening position uniquely determined by the relative urging force of the first and second urging mechanisms and the internal combustion engine can therefore be maintained in such a state that an optimum ~~escape~~ failure operation can be conducted when the control system has a failure.

Replace paragraph [0028] with the following rewritten paragraph:

An electronic throttle valve system is advantageous in reducing emission and fuel consumption but has to be equipped with a ~~failsafe~~ function which is activated when the electronic throttle valve control system has a failure. However, when a ~~failsafe~~ function used for a four-wheeled motor vehicle is applied to a two-wheeled motor vehicle, the rider of the two-wheeled motor vehicle feels a sudden change in the behavior of the vehicle, which the driver of the four-wheeled motor vehicle does not feel, since a two-wheeled motor vehicle is lighter in weight than a four-wheeled motor vehicle.

Replace paragraph [0034] with the following rewritten paragraph:

The urging force of the urging mechanism 30 is ~~so~~ adjusted so that the opening of the throttle valve 10 is enough for the internal combustion engine to be maintained in such a state that ~~escape~~ a failure operation can be conducted at the predetermined opening position 10b shown in Fig. 2. ~~The internal combustion engine is in such a state that escape operation can be conducted means that the engine is in such a state that~~ In this state, the vehicle can be at least driven to a safe place such as a roadside even when the electric control of the electronic throttle valve system is lost. It includes the idle operation state.

Replace paragraph [0037] with the following rewritten paragraph:

According to the electronic throttle valve control system of the present invention, the throttle valve is not rotated rapidly even when the control system has a failure ~~and a failsafe function is activated~~. As a result, the rider of the two-wheeled motor vehicle does not feel a sudden change in the behavior of the vehicle.

Replace paragraph [0038] with the following rewritten paragraph:

Although the throttle valve is rotated in the closing direction and held in a predetermined opening position when the control system has a failure in this embodiment, the throttle valve may be rotated to the fully closed position when the internal combustion engine can be maintained by other means in such a state that ~~escape a failure~~ operation can be conducted. For example, when a bypass line is separately provided in the throttle body so that a certain amount of air can be introduced into the internal combustion engine through the bypass line when the control system has a failure, the internal combustion engine can be maintained in such a state that ~~escape a failure~~ operation can be conducted. In the case of a two-wheeled motor vehicle, there is no need to provide such a bypass line when it is so light that the rider can walk with it even when the throttle valve is fully closed.

Replace paragraph [0042] with the following rewritten paragraph:

The ~~failsafe~~ function in the present invention is activated by shifting the electric motor 20 to a regenerative mode, and this operation can be controlled using the control circuit for controlling the normal operation of the electric motor 20. That is, since the ~~failsafe~~ function in the present invention can be accomplished using the electric motor 20 for actuating the throttle valve 10 as a damping means for preventing rapid rotation of the throttle valve and the control circuit for controlling the forward and reverse rotation of the electric motor 20 as means for

controlling the damping means, there is no need to provide any additional mechanism to a conventional electronic throttle valve control system.

Replace paragraph [0047] with the following rewritten paragraph:

The predetermined opening position 10b represented by the dotted line is uniquely determined depending on the relative urging force of the urging mechanisms 30 and 31. The opening of the throttle valve 10 is adjusted to be large enough that the internal combustion engine is maintained in such a state that ~~escape~~ a failure operation can be conducted at the predetermined opening position 10b. When the throttle valve 10 has only one urging mechanism, the predetermined opening position 10b is the point where the urging force urging the throttle valve 10 in the opening direction and the frictional force exerted on the valve shaft 12 of the throttle valve 10 are balanced. Thus, it is difficult to control the frictional force independently and it is therefore difficult to control the predetermined opening position 10b precisely.

Replace paragraph [0049] with the following rewritten paragraph:

Thus, in a case where the throttle valve 10 has two urging mechanisms, if the throttle valve 10 is in an opening position 10a close to the fully closed position as shown in Fig. 6(b) when the control system has a failure, the throttle valve 10 is rotated in the opening direction (the direction indicated by the arrows) and then held in a predetermined opening position 10b represented by the dotted line. The opening of the throttle valve 10 can be reliably large enough that the internal combustion engine is maintained in such a state that ~~escape~~ a failure operation can be conducted.

Replace paragraph [0053] with the following rewritten paragraph:

When the electronic throttle valve control system has a failure, the throttle valve can be rotated from the opening position at the time when the control system has a failure in the closing direction to a position at which ~~escape~~ a failure operation can be conducted with a throttle operation mechanism with which the throttle valve 10 can be actuated manually.

Replace paragraph [0056] with the following rewritten paragraph:

Fig. 10 is a cross-sectional view, taken along the line X-X in Fig. 9. A spring 30a is attached so as to surround the valve shaft 12. One end of the spring 30a is engaged with a pin 50 provided on the valve shaft actuating gear 43, and the other end of the spring 30a is supported by a case 60 or one of the throttle bodies 11 (not shown). The spring 30a urges the valve shaft 12 in the closing direction via the valve shaft driving gear 43.

Replace paragraph [0065] with the following rewritten paragraph:

A front fork 109 is pivotally supported by the head pipe 103. ~~A steering~~ Steering handle bars 110 are attached to the upper end of the front fork 109, and a front wheel 111 is supported at the lower end of the front fork 109. Rear arms 113 are supported by rear arm brackets 112 at lower rear ends of the tank rails 104 via a pivotal shaft 114 for vertical swinging movement, and a rear wheel 115 is arranged at the rear ends of the rear arms 113.

Replace paragraph [0070] with the following rewritten paragraph:

An AMT (automated transmission) mechanism 126 is located behind the cylinder block 118 and on the transmission 122. The AMT mechanism 126 automatically operates the clutch and shifts the gearbox of the transmission ~~22~~ 122, and includes an electric clutch motor 127 for operating the clutch and other component parts necessary for AMT.

Replace paragraph [0092] with the following rewritten paragraph:

The CPU 305 has a function of monitoring the operating condition of itself and detecting its abnormal operation. When detecting abnormal operation, the CPU 305 outputs interrupt signals to the motor power interrupt circuits 310 and 311 and ~~output~~ outputs to the driving circuits 306 and 307 mode switching signals for shifting the electric motors 127 and 143a into brake mode.

Replace paragraph [0093] with the following rewritten paragraph:

The CPU 305 also has a function of detecting an abnormality of the sensors 144, 150 and 201 and the switch 205 based on the signals inputted from the input circuits 301 to ~~305~~ 304. When detecting an abnormality of any of them, the CPU 305 outputs abnormality signals to the motor power interrupt circuits 310 and 311 and outputs to the driving circuits 306 and 307 mode switching signals for shifting the electric motors 127 and 143a to a brake mode.

Replace paragraph [0117] with the following rewritten paragraph:

Thus, when the throttle valve opening sensor 144 or the throttle grip opening sensor 150 has a failure, the motor power interrupt circuit 310 cuts off the power supply from the motor power source and the driving circuit 306 is shifted to the brake mode. Then, the electric motor 143a in the electronic driving mechanism 143 serves as an electric generator, and a counter-electromotive force is generated and a current in the opposite direction is produced. By the current, a torque in a direction opposite to the rotating direction of the electric motor 143a is generated and serves as a brake.

Replace paragraph [0121] with the following rewritten paragraph:

Thus, when the clutch sensor 201 has a failure, the motor power interrupt circuit 311 cuts off the supply of power from the motor power source and the driving circuit 307 is shifted to the brake mode. Then, the electric clutch motor 127 serves as an electric generator, and a counter-electromotive force is generated and a current in the opposite direction is produced. By the current, a torque in a direction opposite to the rotating direction of the electric clutch motor 127 is generated and serves as a brake.

Replace paragraph [0125] with the following rewritten paragraph:

Thus, when the control system has a failure, an abrupt action of the throttle valve or the clutch caused by rapid rotation of the electric motors can be prevented and a sudden change in the behavior of the two-wheeled vehicle can be prevented. As a result, the rider does not feel discomfort and a change in the operability. Also, since there is no need to provide a further additional mechanism in the driving system or an additional circuit in the control system, the above ~~failsafe~~ function can be achieved at a low cost.

Replace paragraph [0128] with the following rewritten paragraph:

In this case, in the event of a failure, the electric motor can be reliably shifted to the brake mode by cutting off the power supply from the motor power source to the driving circuit and activating the relay circuit 400. As a result, the reliability of the braking operation can be enhanced. As ~~an~~ a device for use in the relay circuit 400 is not limited to a relay switch.—A, a semiconductor device capable of a switching operation may be used.

Replace the Abstract with the following rewritten Abstract:

[Abstract]

~~[Problem]~~ To provide an An electronic throttle valve control system ~~which can prevent~~ prevents rapid rotation of a throttle valve when the control system has a failure. ~~[Solution]~~ There are provided a A throttle valve ~~10 for controlling controls~~ the amount of intake air to an internal combustion engine, an electric motor ~~20 for driving~~ drives the throttle valve ~~10~~, and a control section ~~21 for controlling controls~~ the electric motor ~~20~~. The throttle valve has an urging mechanism ~~31~~ for urging the throttle valve ~~10~~ in the closing direction. The control section ~~21~~ shifts the electric motor ~~20~~ to a regenerative mode when the control system has a failure to control the speed at which the throttle valve ~~10~~ is rotated in the closing direction by the urging force of the urging mechanism ~~30~~. The throttle valve ~~10~~ is therefore rotated slowly in the closing direction by the urging force of the urging mechanism ~~30~~ and then held in a predetermined opening position ~~10b~~.

~~[Selected Drawing]~~ Fig. 1